Homework 3
Assigned   08OC01
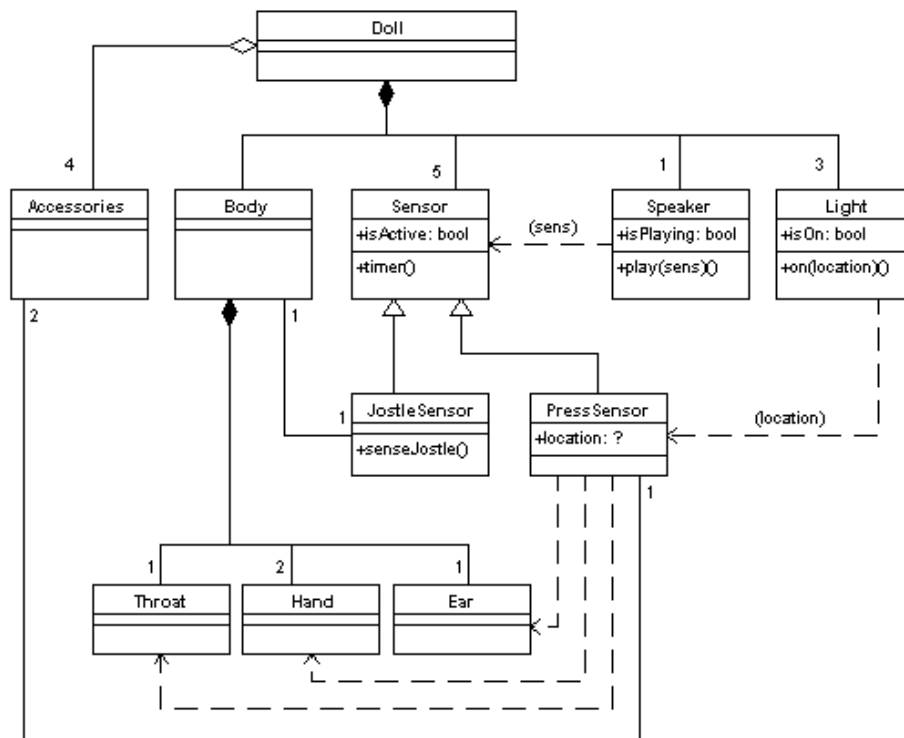Due   19OC01

- All work is completed individually.
- All diagrams must be drawn using Visio.
- Homework set is two pages.
- Each problem is worth 10 points. Point distribution is described for each problem.

Object Diagram

1. A. (7 points) Given below is a class diagram for the doll that was previously demonstrated during lecture. Draw the object diagram for the system when the baby has just been jostled and is in healthy mode. Include all active classes and relevant attributes in the object diagram. Note: for question 1A), assume that the class diagram is accurate and correct.

   B. (3 points) Does your object diagram indicate the need for any modifications to the class diagram? If so, please describe the modifications.

2. A. (7 points) Draw the object diagram reflecting the transition and steady state of the system when the doll's left hand is pressed (ear-ache mode). That is, include operations active during the transition and relevant attributes during and after the transition.

   B. (3 points) Give a textual description of the solution from problem 2A.

Interaction Diagram

3. Begin with scenario one from your original project 1 documentation.
   A. (4 points) Draw a sequence diagram for scenario one.

   B. (2 points) Describe for each message passed, which objects, and therefore which classes, own each operation.

   C. (4 points) Draw the collaboration diagram that corresponds with the sequence diagram from problem 3A.

4. Consider the Alarm Clock from Hwk 2.
   A. (2 points) Develop and bullet-list a scenario to set the clock time to 1:05pm and the alarm time to 7:00am.

   B. (4 points) IMPORTANT. Draw the collaboration diagram for the scenario first (before the sequence diagram). Answer the question either in diagram or text: What *relationships* must exist in the class diagram for the alarm clock?

   C. (4 points) Draw the sequence diagram that corresponds with the collaboration diagram from problem 4B. Answer the question either in diagram or text: What *attributes* and/or *operations* must exist in the class diagram for the alarm clock?

Midterm Exam Question

5. Complete this problem on a separate sheet of paper. Formulate a question for the midterm exam. The question must have two properties: appropriate clarity and appropriate complexity. Clarity means that the description adequately describes the problem. Complexity means that the problem reflects the correct level of difficulty for a senior level, four credit class at the University of Michigan. The set of all problems will be returned ungraded to the students as a study guide for the midterm exam. Up to three questions from the study guide *may* be included in the midterm exam.